

**Teaching and Examination Scheme:**

Teaching Scheme			Credits	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
			ESE (E)	PA (M)	PA(V)	PA (I)		
00	00	15	15	00	00	100	100	200

L- Lectures; P- Practical; OJT- On Job Training; C- Credit; ESE- End Semester Examination;  
PA- Progressive Assessment

**Content:**

Sr. No.	Topic	No. of Hours
1	<p><b>General Introduction &amp; Definition of Welding</b></p> <p>Importance of Welding in Industry, Different process of metal joining methods: Bolting, riveting, soldering, brazing, seaming etc. Introduction and definition of welding: Shielded Metal Arc Welding (SMAW), Oxy Acetylene Gas Welding and Cutting, Arc Welding: MIG, TIG, SAW Resistant Welding, etc. Heat and temperature and its terms related to welding, Principle of arc welding. And characteristics of arc. Common gases used for welding &amp; cutting, flame temperatures and uses Chemistry of oxy-acetylene flame, Types of oxy-acetylene flames and uses, Oxy-Acetylene Cutting Equipment principle, parameters and application. Introduction about different simulation techniques used in welding technology before doing welding process with knowledge of safety equipment, simulation of TIG welding process (3-D Virtual simulation)</p>	60
2	<p><b>Welding Practice</b></p> <p>Types of welding joints and its applications. Edge preparation and fit up for different thickness. Surface Cleaning.</p> <p>Demonstrate welding of Mild steel in 1G/1F, 2G/2F, 3G/3F and 4G/4F positions by Shielded Metal Arc Welding process. (SMAW).</p> <p>Plan and perform welding of Mild steel Plate and sheets by Gas Metal Arc Welding process. (GMAW).</p> <p>Plan and perform welding on of Mild steel Stainless steel &amp; Aluminium sheets &amp; pipes by Gas Tungsten Arc Welding (GTAW).</p> <p>Plan &amp; operate Spot and Seam welding machines to do weld joints.</p> <p>Plan &amp; prepare WPS (Welding procedure specification) &amp; PQR (Procedure Qualification Records).</p> <p>Interpret ASME, ISO &amp; IBR codes/standard/regulations.</p>	120



**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**Syllabus for Bachelor of Vocation (B.Voc), 2<sup>nd</sup> Semester**  
**Branch: Production Technology**  
**Subject Name: OJT Welding Technology**  
**Subject Code: 21120308**

**With effective  
from academic  
year 2021-22**

<b>3</b>	<b>Repair &amp; Maintenance Welding</b>  Plan & perform hard facing of metal surfaces using SMAW process.  Plan & repair welding Non-ferrous metals.  Demonstrate dissimilar metal welding.	20
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**Reference**

CERTIFICATE COURSE IN WELDING TECHNOLOGY (NSQF Level 5)